



Carnegie Mellon University  
**Software Engineering Institute**

# Software Acquisition Process Maturity Questionnaire

Jack Ferguson  
Jack Cooper  
Michael Falat  
Matthew Fisher  
Anthony Guido  
John Marciniak  
Jordan Matejcek  
Robert Webster

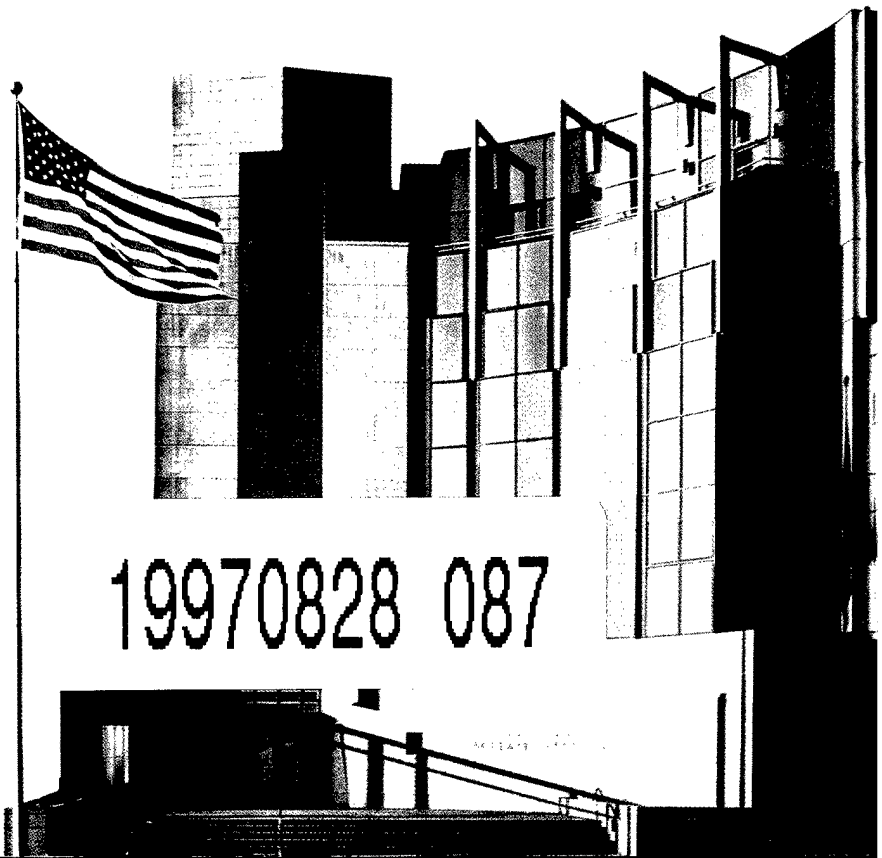
~~Approved for public release~~

**SR**

Special Report  
CMU/SEI-97-SR-013

**DISTRIBUTION STATEMENT A**  
Approved for public release;  
Distribution Unlimited

19970828 087



Carnegie Mellon University does not discriminate and Carnegie Mellon University is required not to discriminate in admission, employment, or administration of its programs or activities on the basis of race, color, national origin, sex or handicap in violation of Title VI of the Civil Rights Act of 1964, Title IX of the Educational Amendments of 1972 and Section 504 of the Rehabilitation Act of 1973 or other federal, state, or local laws or executive orders.

In addition, Carnegie Mellon University does not discriminate in admission, employment or administration of its programs on the basis of religion, creed, ancestry, belief, age, veteran status, sexual orientation or in violation of federal, state, or local laws or executive orders. However, in the judgment of the Carnegie Mellon Human Relations Commission, the Department of Defense policy of, "Don't ask, don't tell, don't pursue," excludes openly gay, lesbian and bisexual students from receiving ROTC scholarships or serving in the military. Nevertheless, all ROTC classes at Carnegie Mellon University are available to all students.

Inquiries concerning application of these statements should be directed to the Provost, Carnegie Mellon University, 5000 Forbes Avenue, Pittsburgh, PA 15213, telephone (412) 268-6684 or the Vice President for Enrollment, Carnegie Mellon University, 5000 Forbes Avenue, Pittsburgh, PA 15213, telephone (412) 268-2056.

Obtain general information about Carnegie Mellon University by calling (412) 268-2000.

**Special Report**  
CMU/SEI-97-SR-013  
July 1997

## Software Acquisition Process Maturity Questionnaire



Jack Ferguson  
Jack Cooper  
Michael Falat  
Matthew Fisher  
Anthony Guido  
John Marciniak  
Jordan Matejcek  
Robert Webster

The Acquisition Risk Management Initiative

**DTIC QUALITY INSPECTED 4**

Unlimited distribution subject to the copyright.

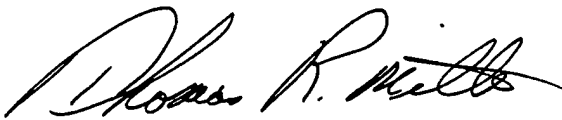
**Software Engineering Institute**  
Carnegie Mellon University  
Pittsburgh, Pennsylvania 15213

This report was prepared for the

SEI Joint Program Office  
HQ ESC/AXS  
5 Eglin Street  
Hanscom AFB, MA 01731-2116

The ideas and findings in this report should not be construed as an official DoD position. It is published in the interest of scientific and technical information exchange.

FOR THE COMMANDER



Thomas R. Miller, Lt Col, USAF  
SEI Joint Program Office

This work is sponsored by the U.S. Department of Defense.

Copyright © 1997 by Carnegie Mellon University.

Permission to reproduce this document and to prepare derivative works from this document for internal use is granted, provided the copyright and "No Warranty" statements are included with all reproductions and derivative works.

Requests for permission to reproduce this document or to prepare derivative works of this document for external and commercial use should be addressed to the SEI Licensing Agent.

#### NO WARRANTY

THIS CARNEGIE MELLON UNIVERSITY AND SOFTWARE ENGINEERING INSTITUTE MATERIAL IS FURNISHED ON AN "AS-IS" BASIS. CARNEGIE MELLON UNIVERSITY MAKES NO WARRANTIES OF ANY KIND, EITHER EXPRESSED OR IMPLIED, AS TO ANY MATTER INCLUDING, BUT NOT LIMITED TO, WARRANTY OF FITNESS FOR PURPOSE OR MERCHANTABILITY, EXCLUSIVITY, OR RESULTS OBTAINED FROM USE OF THE MATERIAL. CARNEGIE MELLON UNIVERSITY DOES NOT MAKE ANY WARRANTY OF ANY KIND WITH RESPECT TO FREEDOM FROM PATENT, TRADEMARK, OR COPYRIGHT INFRINGEMENT.

This work was created in the performance of Federal Government Contract Number F19628-95-C-0003 with Carnegie Mellon University for the operation of the Software Engineering Institute, a federally funded research and development center. The Government of the United States has a royalty-free government-purpose license to use, duplicate, or disclose the work, in whole or in part and in any manner, and to have or permit others to do so, for government purposes pursuant to the copyright license under the clause at 52.227-7013.

This document is available through SAIC/ASSET: 1350 Earl L. Core Road; PO Box 3305; Morgantown, West Virginia 26505 / Phone: (304) 284-9000 / FAX: (304) 284-9001 / World Wide Web: <http://www.saic.com/-contact.html> / e-mail: [webmaster@cpqm.saic.com](mailto:webmaster@cpqm.saic.com)

Copies of this document are available through the National Technical Information Service (NTIS). For information on ordering, please contact NTIS directly: National Technical Information Service, U.S. Department of Commerce, Springfield, VA 22161. Phone: (703) 487-4600.

This document is also available through the Defense Technical Information Center (DTIC). DTIC provides access to and transfer of scientific and technical information for DoD personnel, DoD contractors and potential contractors, and other U.S. Government agency personnel and their contractors. To obtain a copy, please contact DTIC directly: Defense Technical Information Center / Attn: BRR / 8725 John J. Kingman Road / Suite 0944 / Ft. Belvoir, VA 22060-6218. Phone: (703) 767-8274 or toll-free in the U.S. — 1-800 225-3842).

Use of any trademarks in this report is not intended in any way to infringe on the rights of the trademark holder.

# Table of Contents

To the Reader .....	1
Instruction Placard - Software Acquisition Process Maturity Questionnaire .....	5
Software Acquisition Process Maturity Questionnaire .....	7
Respondents Background .....	8
Software Acquisition Planning .....	10
Solicitation .....	12
Requirements Development and Management .....	14
Project Management .....	16
Contract Tracking and Oversight .....	18
Evaluation .....	20
Transition to Support .....	22
Process Definition and Maintenance .....	24
Project Performance Management .....	26
Contract Performance Management .....	28
Acquisition Risk Management .....	30
Training Program .....	32
Organizational Terms .....	34
Change Request Form .....	37
References .....	39



# To the Reader

## Overview

This package contains a copy of the software acquisition process maturity questionnaire. This questionnaire is intended for those interested in performing and learning about software acquisition process appraisals. This questionnaire is not an appraisal method itself; rather, it is a tool that may be used in different appraisal methods.

## Product Description

This version of the questionnaire is based on the Software Acquisition Capability Maturity Model<sup>SM</sup> (SA-CMM)<sup>1</sup>. It has been designed for use in the CMM<sup>SM</sup>-based appraisal for internal process improvement (CBA IPI)<sup>2</sup>. This questionnaire focuses solely on process issues, specifically those derived from the SA-CMM. The questionnaire is organized by SA-CMM key process areas (KPAs) and covers 12 KPAs of the SA-CMM from levels two and three. Because we have limited the number of questions, the questionnaire can usually be completed in one hour.

The questionnaire includes a glossary of terms and KPA descriptions to assist respondents who may be unfamiliar with CMM terminology. Ample space is provided beneath each question to allow respondents to provide additional information regarding their answers. This space can be used to provide further explanation of answers or to provide references to supporting documentation.

## Intended Use of the Software Process Maturity Questionnaire

In a CBA IPI, the questionnaire helps appraisers to identify issues to be explored further during the on-site period. How to use of the maturity questionnaire within the appraisal method is addressed in the appraisal method documentation. We strongly recommend that organizations wishing to use this questionnaire contact the SEI for information about the CMM-based appraisal method used for the SA-CMM. This appraisal method includes specific guidance about how to rate software acquisition processes against the SA-CMM in a reliable and repeatable manner. To contact the SEI, call the Customer Relations Office at 412-268-5800 or send an email to [customer-relations@sei.cmu.edu](mailto:customer-relations@sei.cmu.edu).

## Reporting Appraisal Results to the SEI

The SEI encourages organizations that perform acquisition process appraisals to report their results to the SEI. Only through the willingness of the software acquisition community to report data and results can the SEI provide community maturity profiles, reports on the state of the practice, and other analytical services. We hope that as a user of the questionnaire you will contact us. Nondisclosure agreements are available to provide additional assurance that the data you provide will be kept confidential. Contact the Acquisition Risk Management Initiative at (412) 268-6936 for details about reporting results to the SEI.

---

1. Capability Maturity Model is a service mark of Carnegie Mellon University.

2. CMM is a service mark of Carnegie Mellon University.





We would also like your comments on the questionnaire. Please submit your comments using the change request form included in this package.

### **Contents of the Package**

This package contains an instruction placard, a copy of the software acquisition process maturity questionnaire, a glossary of organizational terms used in the questionnaire, and a change request form.

Instructions for administering the questionnaire are included in the kits for conducting appraisals. They are not included in this package.

### **Other Related SEI Products**

The following SEI products are related to the Software Acquisition Process Maturity Questionnaire. You can obtain information on these products through the Customer Relations Office by phone at 412-268-5800 or by e-mail at [customer-relations@sei.cmu.edu](mailto:customer-relations@sei.cmu.edu).

- The maturity model for software acquisition, entitled the *Software Acquisition Capability Maturity Model (SA-CMM)*, version 1.01 [Ferguson 96]
- The appraisal method used to determine software acquisition maturity, entitled the *CMM-Based Appraisal for Internal Process Improvement (CBA IPI): Method Description* [Dunaway 96]
- The course that covers software acquisition process maturity entitled *Introduction to the Software Acquisition Capability Maturity Model*. For more information about this course, call SEI Customer Relations or visit the SEI Web site at <http://www.sei.cmu.edu/>





## Instruction Placard - Software Acquisition Maturity Questionnaire

### Filling in Your Answers

We will be using optical scanning technology to tabulate your answers, so please print or write neatly throughout the questionnaire.

- Feel free to use the margins if you need more space for your written answers or other comments, but please don't write over the check boxes or crosshair (+) symbols.
- Please keep your marks within the check boxes. Any mark will do: ☐ ☐ ☐
- Use a pen with dark blue or black ink.

### Definitions of Terms

The model on which this Maturity Questionnaire is based uses a number of terms which may be used differently in your organization. These terms are defined at the beginning of each questionnaire section.



### Respondent Identification (Please specify)

YOUR  
NAME:

TODAY'S  
DATE:

PROJECT  
NAME:

WORK  
TELEPHONE:



## Instruction Placard - Software Acquisition Maturity Questionnaire (continued)

### Instructions

1. To the right of each question there are boxes for the four possible responses: **Yes**, **No**, **Does Not Apply**, and **Don't Know**.

Check **Yes** when:

The practice is well established and consistently performed.

*The practice should be performed nearly always in order to be considered well-established and consistently performed as a standard operating procedure.*

Check **No** when:

The practice is not well established or is inconsistently performed.

*The practice may be performed sometimes, but it is omitted under difficult circumstances.*

Check **Does Not Apply** when:

You have the required knowledge about the project or organization and the question asked, but you feel the question does not apply to the project.

*For example, the entire section on "Transition to Support" may not apply to the project if you are acquiring services rather than products.*

Check **Don't Know** when:

You are uncertain about how to answer the question.

2. Use the **Comments** spaces for any elaborations or qualifications about your answers to the questions.
3. Check one of the boxes for each question. Please answer all of the questions.



## Software Acquisition Maturity Questionnaire

Software Acquisition Capability Maturity Model, version 1.01

February 1997

This document contains questions about the implementation of important software acquisition practices in your organization. The questions are organized in groups of key process areas such as software acquisition planning and acquisition risk management. A short paragraph describing each key process area precedes each group of questions. Unless directed otherwise by the person who administers this questionnaire, please answer the questions based on your knowledge and experience in your current project.

To help us better interpret your answers to the questions about the software acquisition process in your organization, this document begins with questions about your background.

Please read and answer all of the questions. If you wish to comment on any questions or qualify your answers, please use the comment spaces provided.

Your answers will be held in strict confidence by the appraisal team. Specific answers will not be identified within your organization, nor in any other manner. Your name will be used for administrative purposes only (i.e., to guide the appraisal team during response analysis and help them contact you for any needed clarifications).

Thank you for your help.

Software Engineering Institute  
Carnegie Mellon University  
Pittsburgh, Pennsylvania 15213-3890

© Copyright 1997 Carnegie Mellon University  
This work is sponsored by the U.S. Department of Defense.



## Respondent Background

1. Please describe your current position.
2. Have you received any CMM-related training? (*Please describe*)
3. What is your software acquisition experience in: (*Please specify for each category*)

Your present organization? .....  YEARS

Your overall acquisition experience? .....  YEARS

4. Have you participated in previous forms of Software Process Assessments, Software Capability Evaluations, and/or other forms of software process appraisals? (*Please mark one box*)

☐ NO

☐ YES → How many? (*Please specify for each category*)

# OF SPAs (Software Process Assessments)

# OF SCEs (Software Capability Evaluations)

# OF OTHER SEI-BASED METHODS (*Please describe briefly:*  
e.g., mini-assessments or instant profiles)

BASED ON NON-SEI PROCESS IMPROVEMENT WORK  
(*Please describe briefly:*  
e.g., ISO 9000/9001 audit)



+

+



---

The purpose of **Software Acquisition Planning** is to ensure that reasonable planning for the software acquisition is conducted and that all elements of the project are included. Software Acquisition Planning involves preparation for software-related areas in system-level planning such as early budgetary action, schedule determination, acquisition strategy, risk identification, and software requirements definition.

---

**acquisition organization** - That entity which has the oversight responsibility for the software acquisition project and which may have purview over the acquisition activities of a number of projects or contract actions

**software acquisition management personnel** - Those individuals who are trained, educated, or experienced in software acquisition management and who are either assigned to or support the project team in the performance of software acquisition activities

---

	Yes	No	Does Not Apply	Don't Know
1. Are software acquisition planning personnel involved in system acquisition planning? .....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Comments:				
2. Does the acquisition organization have a written policy or guideline for planning software acquisition?.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Comments:				
3. Does the planning process provide for support of the software throughout its entire life cycle?.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Comments:				
4. Is a life-cycle cost estimate for the software activity prepared and independently verified during the planning process?.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Comments:				







- |  | Yes                      | No                       | Does<br>Not<br>Apply     | Don't<br>Know            |
|--|--------------------------|--------------------------|--------------------------|--------------------------|
| 5. Does the acquisition organization have experienced software acquisition management personnel? ..... | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |

Comments:





---

The purpose of **Solicitation** is to prepare a solicitation package that identifies the needs of a particular acquisition and to select a contractor who is best capable of satisfying the requirements of the contract. Solicitation involves planning and performing the activities necessary to issue the solicitation package, preparing for the evaluation of responses, conducting the evaluation, conducting negotiations, and awarding the contract. Solicitation ends when the contract is awarded.

---

**periodic review** - A review that occurs at specified regular time intervals

**policy** - A guiding principle, typically established by senior management, that is adopted by an organization or project to influence decisions

---

	Yes	No	Does Not Apply	Don't Know
1. Does the acquisition organization have a written policy for the conduct of the software portion of the solicitation?.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Comments:				
2. Has the responsibility for the software portion of the solicitation been designated? .....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Comments:				
3. Do the people involved in the solicitation have experience or receive training in solicitation activities?.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Comments:				
4. Are the solicitation activities periodically reviewed by the designated selection official or acquisition organization management? .....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Comments:				



+

+



---

The purpose of **Requirements Development and Management** is to establish a common and unambiguous definition of software-related contractual requirements that is understood by the project team, end users, and the contractor. Software-related contractual requirements consist of technical requirements (system requirements allocated to software) and non-technical requirements (contractual agreements, conditions, and terms affecting the software portion of the acquisition). This key process area is divided into two subprocesses: development of software-related contractual requirements and the management of these requirements for the duration of the acquisition.

---

**baseline** - A specification or product that has been formally reviewed and agreed upon, that thereafter serves as the basis for future development, and that can be changed only through formal change control procedures

**event-driven basis** - A review that is performed based on the occurrence of an event within the project (e.g., a formal review or the completion of a life-cycle stage)

**traceability** - The ability to trace, in both the forward and backward directions, the lineage of a requirement from its first level inception and subsequent refinement to its implementation in a software product and the documentation associated with the software product

---

	Yes	No	Does Not Apply	Don't Know
1. Are software-related contractual requirements developed and maintained in conjunction with the end user and other groups that may be affected? .....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Comments:				
2. Is there a documented policy for establishing a software requirements baseline and controlling requirements changes to that baseline?.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Comments:				
3. Is there a software-related contractual requirements baseline and is that baseline placed under change control prior to the release of the solicitation? .....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Comments:				





	Yes	No	Does Not Apply	Don't Know
4. Are changes to software-related contractual requirements evaluated for their impact on performance, architecture, supportability, system resource utilization, and contract schedule and cost?.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Comments:				
5. Does a group exist that performs requirements development and management activities?.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Comments:				
6. Do the individuals who perform requirements development and management activities have experience or receive training? .....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Comments:				
7. Are requirements development and management activities reviewed by the project manager on both a periodic and event-driven basis?.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Comments:				





---

The purpose of **Project Management** is to manage the activities of the project office and supporting contract(s) to ensure a timely, efficient, and effective software acquisition. Project Management involves planning, organizing, staffing, directing, and controlling project office activities such as determining project tasks, estimating software size and cost, scheduling activities and tasks, training, leading the assigned personnel, and accepting software products and services.

---

**commitment** - A pact that is freely assumed, visible, and expected to be kept by all parties

**software acquisition plans** - The collection of plans, both formal and informal, used to express how software acquisition activities will be performed (e.g., Software Acquisition Risk Management Plan or Project Management Plan)

---

	Yes	No	Does Not Apply	Don't Know
1. Do the project management plans include the activities to be performed and the commitments made for the software acquisition project? .....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Comments:				
2. Are adequate resources provided for the project team and matrix support persons (e.g., funding and staff)? .....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Comments:				
3. Does the project's software acquisition management planning documentation define the roles and responsibilities of the groups involved in the project? .....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Comments:				
4. Are measurements used to determine the status of the project management activities and resultant products (e.g., completion of milestones)? .....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Comments:				





	Yes	No	Does Not Apply	Don't Know
5. Does the project manager review the project management activities on both a periodic and event-driven basis? .....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Comments:





---

The purpose of **Contract Tracking and Oversight** is to ensure that the software activities under contract are being performed in accordance with contractual requirements and that evolving products and services will satisfy contractual requirements. Contract Tracking and Oversight involves providing ongoing inputs and guidance to the contractor's effort and identifies risks and problems in the effort. The contract provides the binding agreement for establishing the requirements for the software products and services to be acquired. The contract also allows the project team to oversee the contractor's software activities and evolving products and to evaluate any software products and services being acquired.

---

**contract** - A binding agreement between two or more parties that establishes the requirements for the products and services to be acquired

**contract integrity** - The adherence and compliance to contractual and legal policies, regulations, and other guidance

**periodic review** - A review that occurs at specified regular time intervals

**procedure** - A written description of a course of action to be taken to perform a given task [IEEE 90]

---

	Yes	No	Does Not Apply	Don't Know
1. Is there a documented policy or procedure for tracking and overseeing the contracted software effort? .....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Comments:				
2. Are the contractor software planning documents approved and are they used to oversee the contractor's software engineering effort?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Comments:				
3. Does the project team maintain the integrity of the contract with respect to changes to requirements, changes to terms and conditions, and in coordination with all affected groups, including the contractor?.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Comments:				







- |  | Yes                      | No                       | Does<br>Not<br>Apply     | Don't<br>Know            |
|--|--------------------------|--------------------------|--------------------------|--------------------------|
| 4. Are periodic reviews and interchanges conducted with the contractor to resolve issues? .....  | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Comments:  |                          |                          |                          |                          |
| 5. Are problems or issues found during contract tracking and oversight recorded and tracked to closure?.....                           | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Comments:  |                          |                          |                          |                          |
| 6. Are measurements used to determine the status of contract tracking and oversight activities and resultant products? .....           | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Comments:  |                          |                          |                          |                          |
| 7. Are the contract tracking and oversight activities reviewed by the project manager on both a periodic and event-driven basis? ..... | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Comments:  |                          |                          |                          |                          |





---

The purpose of **Evaluation** is to determine that the acquired software products and services satisfy contract requirements prior to their acceptance and transition to support. Evaluations are conducted during contract performance and results are analyzed to determine acceptability of the software products and services. Evaluation begins with development of the system requirements and ends when the software acquisition is completed.

---

**defect** - A flaw in a system or system component that causes the system or component to fail to perform a required function

**evaluation** - The use of reviews, inspections, and/or tests to determine that a software product or service satisfies its specified requirements

---

	Yes	No	Does Not Apply	Don't Know
1. Does the acquisition organization have a written policy to manage evaluation? .....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Comments:				
2. Are all products and services evaluated before acceptance? .....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Comments:				
3. Is a group established that is responsible for planning, managing, and performing evaluation activities? .....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Comments:				
4. Are measurements used to determine the status of the evaluation activities and resultant products? .....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Comments:				





- |   | Yes                      | No                       | Does<br>Not<br>Apply     | Don't<br>Know            |
|---|--------------------------|--------------------------|--------------------------|--------------------------|
| 5. Are the evaluation activities reviewed by the project manager on both a periodic and event-driven basis? ..... | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |

Comments:





---

The purpose of **Transition to Support** is to provide for the transition of the software products being acquired to the software support organization. The necessary resources are identified, budgeted for, and available when needed. The designated software support organization is fully prepared to accept responsibility for the software products in time to ensure uninterrupted support. Transition to Support involves developing and implementing plans for transitioning the acquired software products. It also involves ensuring that the contractor and the software support organization are informed on the contents of the software engineering and support environments.

---

**software support** - The process of modifying a software system or component after delivery to correct faults, improve performance or other attributes, or adapt to a changed environment [IEEE 90]

---

- |  | Yes                      | No                       | Does<br>Not<br>Apply     | Don't<br>Know            |
|--|--------------------------|--------------------------|--------------------------|--------------------------|
| 1. Is there a documented policy or procedure for the transition of software products to the software support organization? ..... | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Comments:  |                          |                          |                          |                          |
| 2. Are the resources for software support included in the appropriate budget? .....  | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Comments:  |                          |                          |                          |                          |
| 3. Has responsibility for the transition of software to the software support organization been designated? .....                 | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Comments:  |                          |                          |                          |                          |
| 4. Does the project team oversee the configuration control of the software products during the transition phase? .....           | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Comments:  |                          |                          |                          |                          |





- |  | Yes                      | No                       | Does<br>Not<br>Apply     | Don't<br>Know            |
|--|--------------------------|--------------------------|--------------------------|--------------------------|
| 5. Are the transition to support activities reviewed by the project manager on both a periodic and event-driven basis? ..... | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |

Comments:

- |  |                          |                          |                          |                          |
|--|--------------------------|--------------------------|--------------------------|--------------------------|
| 6. Are the transition to support activities reviewed by the acquisition and software support organization's management on a periodic basis?..... | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
|--|--------------------------|--------------------------|--------------------------|--------------------------|

Comments:





---

The purpose of **Process Definition and Maintenance** is to establish the acquisition organization's standard software acquisition process and an organizational responsibility for stabilizing and maintaining the standard software acquisition process. Process Definition and Maintenance involves understanding the organization's and projects' software acquisition processes, collecting a set of software acquisition process assets, and coordinating efforts to appraise and improve software acquisition processes. The acquisition organization provides the long-term commitments and resources to establish and maintain a software acquisition process group. This group is responsible for the definition, maintenance, and improvement of the acquisition organization's standard software acquisition process and other process assets, including guidelines for projects to tailor the standard software acquisition process to their specific situations.

---

**project team** - All individuals that have an assigned software acquisition responsibility in the contracted effort. A project team may vary in size from a single individual assigned part time to a large organization assigned full time

**software acquisition process** - A set of activities, methods, practices, and transformations that people use to acquire software and the associated products

**software acquisition process repository** - A collection of software acquisition process information (e.g., estimated and actual data on software project size, effort, and cost; and project team productivity and quality data) gathered from the software acquisition projects that is maintained by the acquisition organization to support its software acquisition definition, maintenance, and improvement activities

---

	Yes	No	Does Not Apply	Don't Know
1. Is a standard software acquisition process for your acquisition organization defined and maintained? .....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Comments:				
2. Are the activities for defining and maintaining the software acquisition processes coordinated across the acquisition organization? .....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Comments:				





- |  | Yes                      | No                       | Does<br>Not<br>Apply     | Don't<br>Know            |
|--|--------------------------|--------------------------|--------------------------|--------------------------|
| 3. Does your acquisition organization collect, analyze, and make available information related to the use of the organization's standard software acquisition process?.....  | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Comments:  |                          |                          |                          |                          |
| 4. Does your acquisition organization have a group that is responsible for the acquisition organization's definition and maintenance process activities (e.g. a software acquisition process group)? .....                 | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Comments:  |                          |                          |                          |                          |
| 5. Do the individuals that are responsible for the acquisition organization's software acquisition process activities have experience or receive required training in process definition and maintenance activities? ..... | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Comments:  |                          |                          |                          |                          |
| 6. Are measurements used to determine the status of the process definition and maintenance activities and resultant products (e.g., completion of milestones, effort expended, and funds expended)?                        | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Comments:  |                          |                          |                          |                          |
| 7. Are the activities performed to define and maintain the acquisition organization's software acquisition process reviewed periodically with acquisition organization management?.....                                    | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Comments:  |                          |                          |                          |                          |





---

The purpose of **Project Performance Management** is to manage the software acquisition project according to a defined software acquisition process. Project Performance Management involves developing the project's defined software acquisition process and managing the acquisition using this defined process. The project's defined software acquisition process is tailored from the acquisition organization's standard software acquisition process to address specific attributes of the project. The project's management plans describe how the project's defined acquisition process will be implemented and managed.

---

**project's defined software acquisition process** - The project's tailored version of the acquisition organization's standard software acquisition process

**tailor** - To modify a process, standard, or procedure to better match process or product requirements

---

	Yes	No	Does Not Apply	Don't Know
1. Was the project's defined software acquisition process developed and documented by tailoring the acquisition organization's standard software acquisition process? .....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Comments:				
2. Are the project's software acquisition activities planned and performed in accordance with the project's defined software acquisition process? .....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Comments:				
3. Are measurements used to determine the status of the project performance management activities and resultant products? .....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Comments:				
4. Are the project performance management activities periodically reviewed by acquisition organization management? .....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Comments:				





+

+



---

The purpose of **Contract Performance Management** is to implement a defined contract management process, the objective of which is to acquire software products and services that satisfy contract requirements. Additional activities include contributing to the project's risk management activities, fostering an environment of mutual cooperation with the contractor, and identifying improvements to the contract performance management process.

---

**contract** - A binding agreement between two or more parties that establishes the requirements for the products and services to be acquired

**tailor** - To modify a process, standard, or procedure to better match process or product requirements

---

	Yes	No	Does Not Apply	Don't Know
1. Is there a written policy for contract performance management activities? .....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Comments:				
2. Is there a documented plan for contract performance management activities? .....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Comments:				
3. Are the contractor's software engineering processes and the resulting products and services evaluated to determine if they satisfy contractual requirements?.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Comments:				
4. Do the contract performance management activities foster a cooperative environment between the project team and the contractor?.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Comments:				





- |  | Yes                      | No                       | Does<br>Not<br>Apply     | Don't<br>Know            |
|--|--------------------------|--------------------------|--------------------------|--------------------------|
| 5. Are measurements used to determine the status of the contract performance management activities and resultant products? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |

Comments:

- |  |                          |                          |                          |                          |
|--|--------------------------|--------------------------|--------------------------|--------------------------|
| 6. Are the contract performance management activities reviewed by acquisition organization management on a periodic basis? ..... | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
|--|--------------------------|--------------------------|--------------------------|--------------------------|

Comments:





---

The purpose of **Acquisition Risk Management** is to identify risks as early as possible, adjust the acquisition strategy to manage those risks, and develop and implement a risk management process as an integral part of the acquisition organization's standard software acquisition process. Acquisition risk management is a two-part process. First, the software acquisition strategy identifies the risks associated with the acquisition of the system and the approach is planned based on those risks. Second, a process is employed to manage the risks throughout the acquisition.

---

**risk management** - The process associated with identifying, evaluating, mitigating, and controlling project risks

---

	Yes	No	Does Not Apply	Don't Know
1. Does the acquisition organization have a written policy for acquisition risk management?.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Comments:				
2. Has responsibility for acquisition risk management activities been designated? .....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Comments:				
3. Are software acquisition risk management activities integrated into software acquisition planning? .....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Comments:				
4. Is the Software Acquisition Risk Management Plan developed according to the project's defined software acquisition process? ...	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Comments:				





- |   | Yes                      | No                       | Does<br>Not<br>Apply     | Don't<br>Know            |
|---|--------------------------|--------------------------|--------------------------|--------------------------|
| 5. Are risk management activities conducted during contract performance management? ..... | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |

Comments:

- |   |                          |                          |                          |                          |
|---|--------------------------|--------------------------|--------------------------|--------------------------|
| 6. Are risk mitigation actions tracked to completion? ..... | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
|---|--------------------------|--------------------------|--------------------------|--------------------------|

Comments:





---

The purpose of **Training Program** is to develop the skills and knowledge of individuals so they can perform their software acquisition roles effectively and efficiently. Training Program involves the appraisal of training requirements at the acquisition organization, project, and individual levels. Some skills are effectively and efficiently imparted through informal vehicles, whereas other skills need more formal training vehicles to be effectively and efficiently imparted. The appropriate vehicles are selected and used.

---

**training program** - The set of related elements that focuses on addressing an organization's training needs. It includes an organization's training plan, training materials, development of training, conduct of training, training facilities, evaluation of training, and maintenance of training records

---

- |   | Yes                      | No                       | Does Not Apply           | Don't Know               |
|---|--------------------------|--------------------------|--------------------------|--------------------------|
| 1. Are training program activities planned? .....   | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Comments:   |                          |                          |                          |                          |
| 2. Does each software acquisition project identify specific training needs and develop a training plan in accordance with training program procedures?.....     | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Comments:   |                          |                          |                          |                          |
| 3. Are adequate resources provided to implement the organization's training program (e.g., funding, staff, equipment, tools, and appropriate facilities)? ..... | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Comments:   |                          |                          |                          |                          |
| 4. Are measurements used to determine the status of the training program activities and resultant products?.....  | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Comments:   |                          |                          |                          |                          |



+

5. Are training program activities reviewed by organization  
management on a periodic basis? ..... ☐ ☐ ☐ ☐

Comments:

+



## Organizational Terms

The following definitions include all of the organizational terms used in the Software Acquisition Capability Maturity Model to provide a context relating to the organizational terms used in the Maturity Questionnaire.

**acquisition organization** - That entity which has the oversight responsibility for the software acquisition project and which may have purview over the acquisition activities of a number of projects or contract actions

**affected groups** - Groups with related responsibilities or obligations whose work performance might be impacted. Such groups might include end users, evaluators, software engineering, management staff, and contractors

**contractor** - The entity delivering the product or performing the service being acquired, even if that entity is part of the acquiring organization

**end user** - The individual or group who will use the system for its intended operational use when it is deployed in its environment

**manager** - A role that encompasses providing technical and administrative direction and control to individuals performing tasks or activities within the manager's area of responsibility. The traditional functions of a manager include planning, resourcing, organizing, directing, and controlling work within an area of responsibility

**offeror** - A contractor who submits a proposal in response to a solicitation package

**organization** - The parent organization of the acquisition organization

**project** - An undertaking that is focused on acquiring a specific product. The product may include hardware, software, and services. Typically, a project has its own funding, cost accounting, and delivery schedule

**prime contractor** - An individual, partnership, corporation, or association that administers a subcontract to design, develop, and/or manufacture one or more products

**project manager** - The role with total business responsibility for an entire project; the individual who directs, controls, administers, and regulates a project acquiring software, a hardware/software system, or services. The project manager is the individual ultimately responsible to the end user

**project office** - The aggregate of individuals assigned the primary responsibility for software acquisition in the contracted effort. A project office may vary in size from a single individual assigned part time to a large organization assigned full time







**project team** - All individuals that have an assigned software acquisition responsibility in the contracted effort. A project team may vary in size from a single individual assigned part time to a large organization assigned full time

**software acquisition management personnel** - Those individuals who are trained, educated, or experienced in software acquisition management and who are either assigned to or support the project team in the performance of software acquisition activities

**software acquisition-related group** - A collection of individuals (both managers and technical staff) representing a software discipline that supports, but is not directly responsible for, software acquisition. Examples of software disciplines include software configuration management and software quality assurance

**software engineering group** - The collection of individuals (both managers and technical staff) who are responsible for software development and maintenance activities (i.e., requirements analysis, design, code, and test) for a project. Groups performing software-related work, such as the software quality assurance group and the software configuration management group, are not included in the software engineering group

**software engineering personnel** - Those individuals who are trained, educated, or experienced in software engineering and who are either assigned to or support the project team in the performance of software acquisition activities

**subcontractor** - An individual, partnership, corporation, or association that contracts with an organization (i.e., the prime contractor) to design, develop, and/or manufacture one or more products







## Change Request Form

Feel free to write in any available space, or attach extra sheets, if you have additional concerns, wish to make suggestions for improvement, comment further on any questions, or qualify your answers.

		<b>Change Request number:</b>
Date:		
Product Reviewed:	Version Reviewed:	
Name of Submitting Organization:		
Reviewer's Name:	Reviewer's Telephone:	
Reviewer's Title:		
Reviewer's E-Mail Address:		
Reviewer's Mailing Address:		
Short Descriptive Title for Change:		
Location of Change:		
Page Number:	Paragraph Number:	
Key Process Area:	Common Feature:	
Other Identifiers:		
Proposed Change:		
Rationale for Change		
<b>Shaded areas to be filled in by SEI.</b>		
<p>Note: For the SEI to take appropriate action on a change request, we must have a clear description of the recommended change, along with a supporting rationale. Send US mail to: Change Requests, Risk Program and Acquisition Risk Management Initiative, Software Engineering Institute, Carnegie Mellon University, Pittsburgh, PA 15213-3890</p> <p>Send packages to: Change Requests, Risk Program and Acquisition Risk Management Initiative, Software Engineering Institute, Carnegie Mellon University, 4500 Fifth Avenue, Pittsburgh, PA 15213-2691</p> <p>Send via Internet to: SA-change@sei.cmu.edu</p>		





## References

- [Ferguson 96] Ferguson, J.; Cooper, J.; Falat, M.; Fisher, M.; Guido, A.; Marciniak, J.; & Webster R. *Software Acquisition Capability Maturity Model*. (CMU/SEI-96-TR-020). Pittsburgh, Pa.: Carnegie Mellon University, 1996.
- [Dunaway 96] Dunaway, D. & Masters, S. *CMM-Based Appraisal for Internal Process Improvement (CBA IPI): Method Description* (CMU/SEI-96-TR-007, ADA 307934). Pittsburgh, Pa.: Software Engineering Institute, Carnegie Mellon University, 1996.
- [IEEE 90] IEEE Computer Society, Standards Coordinating Committee. *IEEE Standard Glossary of Software Engineering Terminology*. New York, NY: IEEE Press, 1990.



## REPORT DOCUMENTATION PAGE

<b>1a. REPORT SECURITY CLASSIFICATION</b> Unclassified			<b>1b. RESTRICTIVE MARKINGS</b> None																						
<b>2a. SECURITY CLASSIFICATION AUTHORITY</b> N/A			<b>3. DISTRIBUTION/AVAILABILITY OF REPORT</b> Approved for Public Release Distribution Unlimited																						
<b>2b. DECLASSIFICATION/DOWNGRADING SCHEDULE</b> N/A																									
<b>4. PERFORMING ORGANIZATION REPORT NUMBER(S)</b> CMU/SEI-97-SR-013			<b>5. MONITORING ORGANIZATION REPORT NUMBER(S)</b> (blank)																						
<b>6a. NAME OF PERFORMING ORGANIZATION</b> Software Engineering Institute		<b>6b. OFFICE SYMBOL (if applicable)</b> SEI	<b>7a. NAME OF MONITORING ORGANIZATION</b> SEI Joint Program Office																						
<b>6c. ADDRESS (city, state, and zip code)</b> Carnegie Mellon University Pittsburgh PA 15213			<b>7b. ADDRESS (city, state, and zip code)</b> HQ ESC/AXS 5 Eglin Street Hanscom AFB, MA 01731-2116																						
<b>8a. NAME OFFUNDING/SPONSORING ORGANIZATION</b> SEI Joint Program Office		<b>8b. OFFICE SYMBOL (if applicable)</b> ESC/AXS	<b>9. PROCUREMENT INSTRUMENT IDENTIFICATION NUMBER</b> F19628-95-C-0003																						
<b>8c. ADDRESS (city, state, and zip code))</b> Carnegie Mellon University Pittsburgh PA 15213			<b>10. SOURCE OF FUNDING NOS.</b> <table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 25%;">PROGRAM ELEMENT NO</td> <td style="width: 25%;">PROJECT NO.</td> <td style="width: 25%;">TASK NO</td> <td style="width: 25%;">WORK UNIT NO.</td> </tr> <tr> <td>63756E</td> <td>N/A</td> <td>N/A</td> <td>N/A</td> </tr> </table>				PROGRAM ELEMENT NO	PROJECT NO.	TASK NO	WORK UNIT NO.	63756E	N/A	N/A	N/A											
PROGRAM ELEMENT NO	PROJECT NO.	TASK NO	WORK UNIT NO.																						
63756E	N/A	N/A	N/A																						
<b>11. TITLE (Include Security Classification)</b> Software Acquisition Process Maturity Questionnaire																									
<b>12. PERSONAL AUTHOR(S)</b> Jack Ferguson, et. al.																									
<b>13a. TYPE OF REPORT</b> Final		<b>13b. TIME COVERED</b> FROM                      TO		<b>14. DATE OF REPORT (year, month, day)</b> July 1997		<b>15. PAGE COUNT</b> 38																			
<b>16. SUPPLEMENTARY NOTATION</b> (blank)																									
<b>17. COSATI CODES</b> <table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 33%;">FIELD</td> <td style="width: 33%;">GROUP</td> <td style="width: 33%;">SUB. GR.</td> </tr> <tr><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td></tr> </table>			FIELD	GROUP	SUB. GR.													<b>18. SUBJECT TERMS (continue on reverse of necessary and identify by block number)</b> <table style="width: 100%;"> <tr> <td style="width: 50%;">software acquisition</td> <td style="width: 50%;">maturity questionnaire</td> </tr> <tr> <td>SA-CMM</td> <td>acquisition</td> </tr> </table>				software acquisition	maturity questionnaire	SA-CMM	acquisition
FIELD	GROUP	SUB. GR.																							
software acquisition	maturity questionnaire																								
SA-CMM	acquisition																								
<b>19. ABSTRACT (continue on reverse if necessary and identify by block number)</b> <p>This package contains a copy of the software acquisition process maturity questionnaire. It is intended for those interested in performing and learning about software acquisition process appraisals. This questionnaire is not an appraisal method itself; rather, it is a tool that may be used in different appraisal methods.</p> <p style="text-align: right;">(please turn over)</p>																									
<b>20. DISTRIBUTION/AVAILABILITY OF ABSTRACT</b> UNCLASSIFIED/UNLIMITED <input checked="" type="checkbox"/> SAME AS RPT <input type="checkbox"/> DTIC USERS <input checked="" type="checkbox"/>				<b>21. ABSTRACT SECURITY CLASSIFICATION</b> Unclassified, Unlimited Distribution																					
<b>22a. NAME OF RESPONSIBLE INDIVIDUAL</b> Thomas R. Miller, Lt Col, USAF				<b>22b. TELEPHONE NUMBER (include area code)</b> (412) 268-7631		<b>22c. OFFICE SYMBOL</b> ESC/AXS (SEI)																			

ABSTRACT — continued from page one, block 19